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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
MULLINS, BURTON S

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 04/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/764,766	HEINE ET AL.	
	Examiner	Art Unit	
	Burton S. Mullins	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 February 2002* .

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *67-86* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *67-86* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s) _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

BURTON S. MULLINS
PRIMARY EXAMINER

DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not). Misnumbered claims 2-21 have been renumbered 67-86.

2. Claims 68 and 70 are objected to because of the following informalities: In both claims, insert a comma after "plurality of slots". In claim 70, change "would" to ---wound---. In claim 81, insert a hyphen between "non" and "repeating". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 67-86 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 67, recitation "said magnet" lacks antecedent basis. Recitation "an actuator combined with a motor" is confusing since it is not clear whether "a motor" refers to a second motor or the previously recited motor, i.e. ---an actuator combined with the motor---. Presumably, the latter is correct.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown (US 5,396,388) in view of Paden (US 5,631,506). Brown teaches a disc drive apparatus including: a rotor 16 with an inertial load comprising at least one disc 24 and bearing 20 means supporting the rotor and disc about a spin axis (Fig.2); motor means 14 rotating the rotor about the spin axis (Fig.2); a first set of windings (motor stator coils 14a); and a source of DC drive current (not shown) for causing relative rotation between the windings 14a and rotor magnets 14b (c.8, lines 7-11).

Brown does not teach an "actuator" combined with the motor and having a source of current energizing the windings to generate a radial force that stabilizes the position of the spin axis and dampens movement of the rotor disc.

Paden teaches a motor with vibrational control elements including an actuator comprising stator coils 16-1,16-2&16-3 (Fig.3A) and a movable plate or target 11 that shifts about an axis (Fig.6), with a non-uniform gap 17 therebetween. The coils produce a current to control two-dimensional translation (i.e., including the radial direction) of the target plate 11 relative to the stator coils based on a feedback system in order to isolate the plate from vibrations (c.8, lines 28-31; c.8, line 66-c.9, line 28).

It would have been obvious to one of ordinary skill to modify Brown with the vibrational control coils of Paden for the purpose of isolating the rotor from vibrations.

6. Claims 67-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown (US 5,396,388) in view of Ohmi (US 5,636,193). Brown teaches a disc drive apparatus

including: a rotor 16 with an inertial load comprising at least one disc 24 and bearing 20 means supporting the rotor and disc about a spin axis (Fig.2); motor means 14 rotating the rotor about the spin axis (Fig.2); a first set of windings (motor stator coils 14a); and a source of DC drive current (not shown) for causing relative rotation between the windings 14a and rotor magnets 14b (c.8, lines 7-11).

Brown does not teach an "actuator" combined with the motor and having a source of current energizing the windings to generate a radial force that stabilizes the position of the spin axis and dampens movement of the rotor disc.

Ohmi teaches a method for reducing vibrations in a spindle motor 12 driving a disk drive comprising a Fast Fourier Transform (FFT) unit 24 which carries out a frequency analysis of an error signal corresponding to the vibration of the spindle motor (Fig.1; c.4, lines 22-27 & lines 50-60). A correction signal 29 is generated and used to further generate a composite correction driving waveform 34 which is fed to the motor drive circuit and suppresses vibration of the motor (c.5, lines 31-37; c.6, lines 16-20).

It would have been obvious to one having ordinary skill in the art to modify Brown and provide vibration cancellation means per Ohmi for the purpose of reducing vibrations in the rotational drive.

Regarding claim 68, Brown teaches a standard winding a stator with slots.

Regarding claims 69-71, Ohmi's spindle motor is a three-phase motor.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 67-71 and 79-80 are rejected under the judicially created doctrine of double patenting over claims 1-5 and 11 of U. S. Patent No. 6,201,322 (US '322) since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent. The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: Claim 1 of US '322 recites "[a]n apparatus for stabilizing the spin axis of a rotating system, the rotating system comprising: a rotor carrying an inertial load and bearing means to

support the rotor about the spin axis, and a motor to cause rotation of the rotor about the spin axis comprising: a magnet; a first set of windings; a source of drive current applied to the windings for causing relative rotation between the windings and the magnet; and an actuator combined with the motor means and comprising a source of actuator current and combined with the drive current and applied to energizing the windings to generate a radial force which stabilizes the position of the spin axis and dampens vibrational or resonant movements of the rotor; first and second input signals representing components of the radial force to be generated, and a third input representing motor position; memory means addressed with an argument of a function based on the rotor position for providing a function based output based on the rotor position; and multiplier means responsive to the trigonometric function based output and the first and second input signals representing components of the radial force to control the actuator current." See also claim 5.

US '322 differs only in that a disc drive and disc are not explicitly claimed. However, it would have been obvious to one of ordinary skill to use the spin axis stabilization apparatus of US '322 on a disc drive since it is stated at c.1, lines 58-60 that the invention is to be used on a disc drive motor.

Regarding the remaining claims, the table below compares applicant's claims to US '322:

Applicant's Claim	US '322 Claim
67	1 and 5
68	2
69	3
70	4

71	5
79	11
80	1 and 5

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Response to Arguments

9. Applicant's arguments filed 2-21-02 have been fully considered but they are not persuasive. Applicant argues that Paden does not teach a motor with separate windings, or the application of separate sets of currents to reduce vibrations. It is noted that the base reference Brown teaches a motor with windings. Paden teaches an actuator wherein currents in the coils generate Maxwell forces between the "stator" and the plate to reduce vibration of the plate. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "separate sets of currents") are not recited in the rejected claim 67. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Allowable Subject Matter

10. Claims 72-78 and 81-86 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Regarding claim 72, the prior art does not teach or suggest the claimed spin axis stabilizer including, inter alia, first and second probes with outputs used to generate first and second phase winding energizing signals. Regarding claim 78, the prior art does not teach or suggest the claimed spin axis stabilizer including, inter alia, concentric slotless windings placed in an airgap between a core and rotating magnets. Regarding claim 81, the claimed spin axis stabilizer including, inter alia, comb means for separating non-repeating movements from repeating movements of the rotor.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 305-1341 for regular communications and 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.

Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
April 19, 2002